Draft Presentation
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Does not represent
final NOAA Decision/Policy.
4/30/08

Gulf of Maine – Georges Bank Acadian Redfish

Addressing reviewer concerns for the 2008 GARM BRP meeting

Reviewer Requests

- Use SR curve to address difficulty with initial population level. (done)
- Assume low CV (≤0.2) of (log) recruitment residuals when age composition data IS NOT available and greater CV (≥0.4) when data IS available. (done)
- Allow selectivity of fleet to change over time (not done)

Redfish -- ASAP 2.0

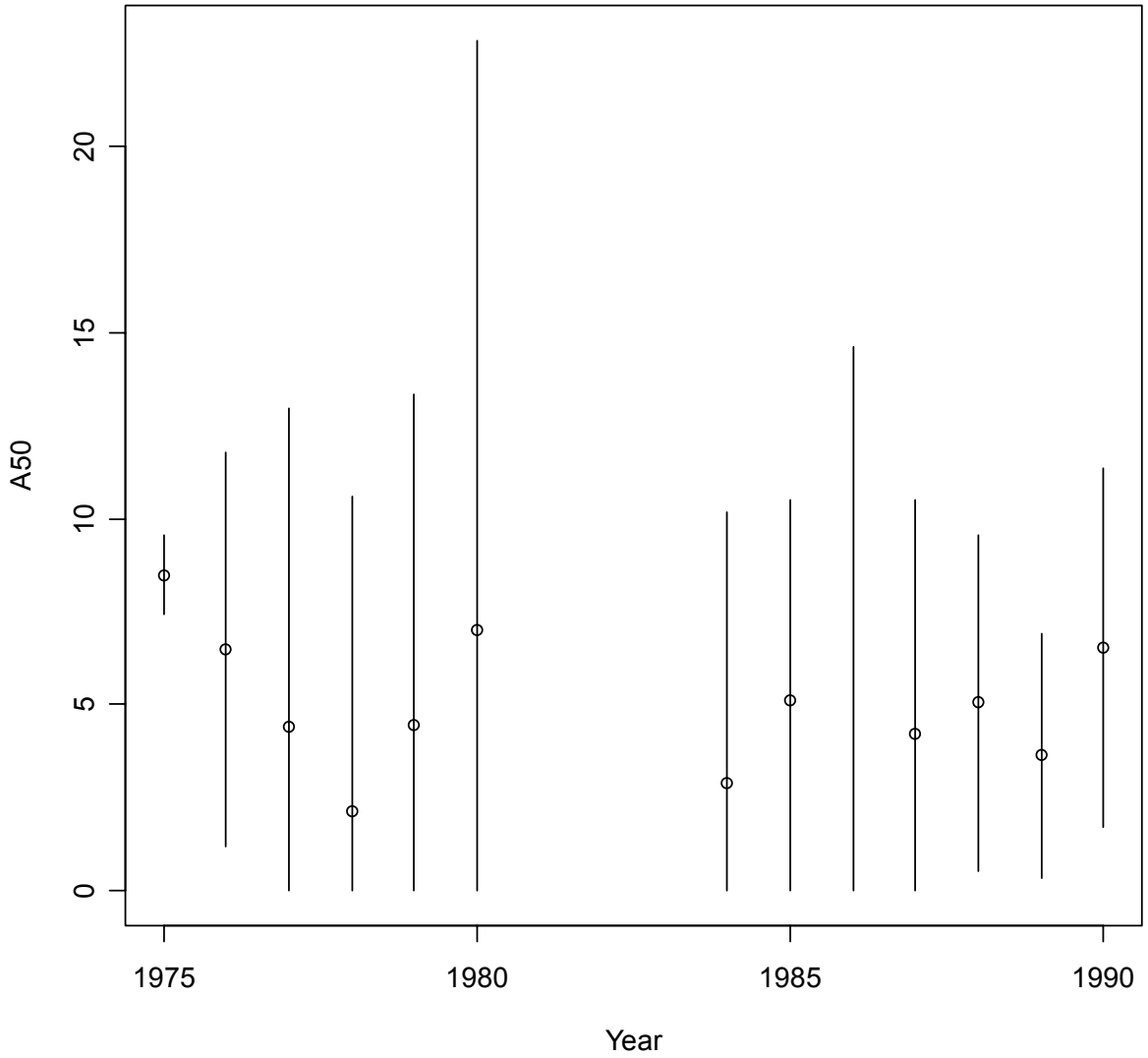
- Used redfish data to estimate assessment parameters including B-H SR curve.
- I did NOT use the 1952-1989 CPUE time series as an index (but could change this).
- Maturity at age, weight at age are revised
- Uncertainty in survey indices derives from sampling design
- Discards (and uncertainty) are added to landings (1989-2006)
- Otherwise, I attempted to make as many of the same assumptions as possible as those in the RED/STATCAM models

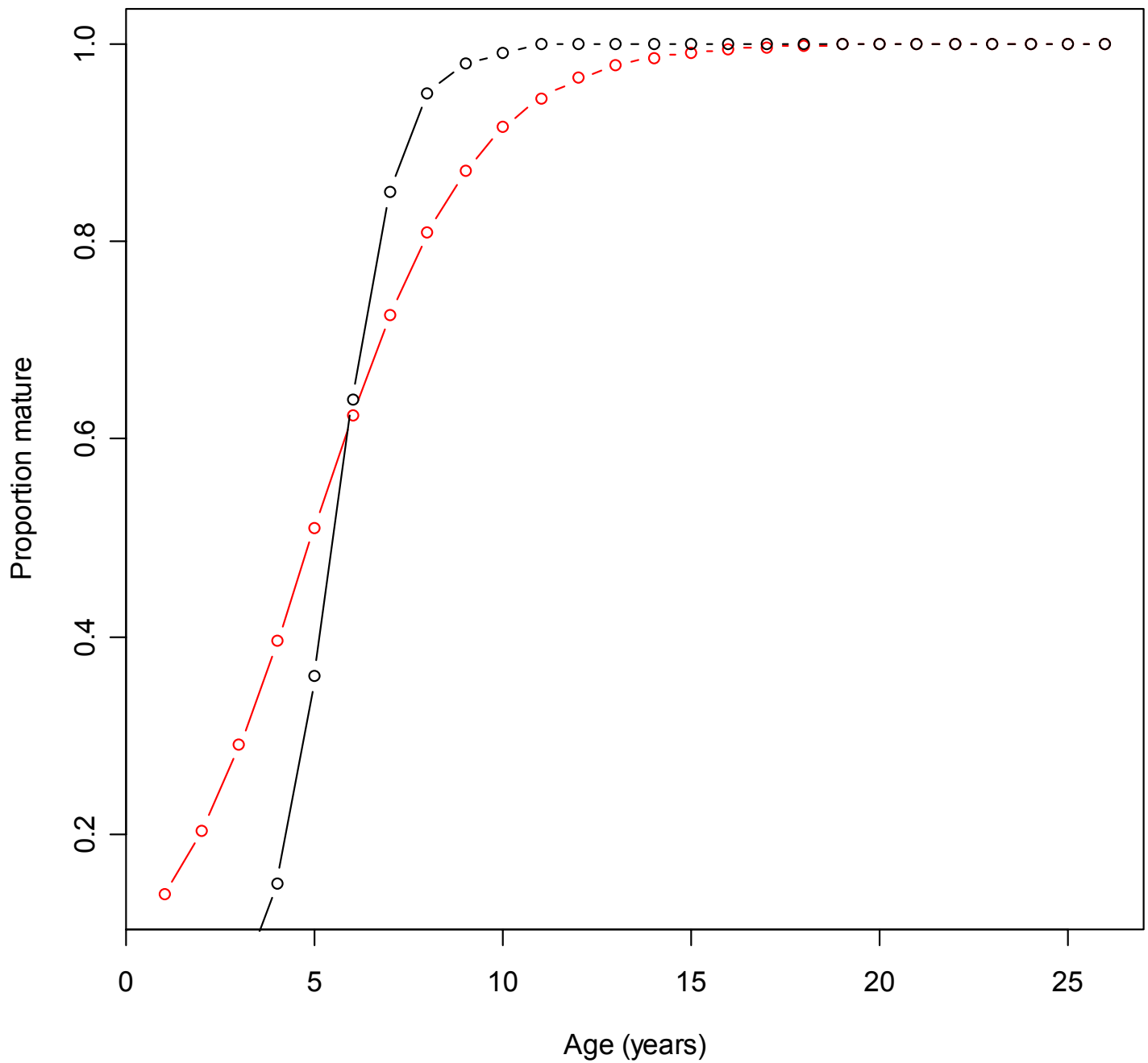
Maturity at age

Length of Spring survey time series is less than desirable…

No apparent trend in A50 over this time period (but significant yearly differences in B0 or B1…).

Decide to use a single maturity curve.




Proportion mature
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
Age (years)

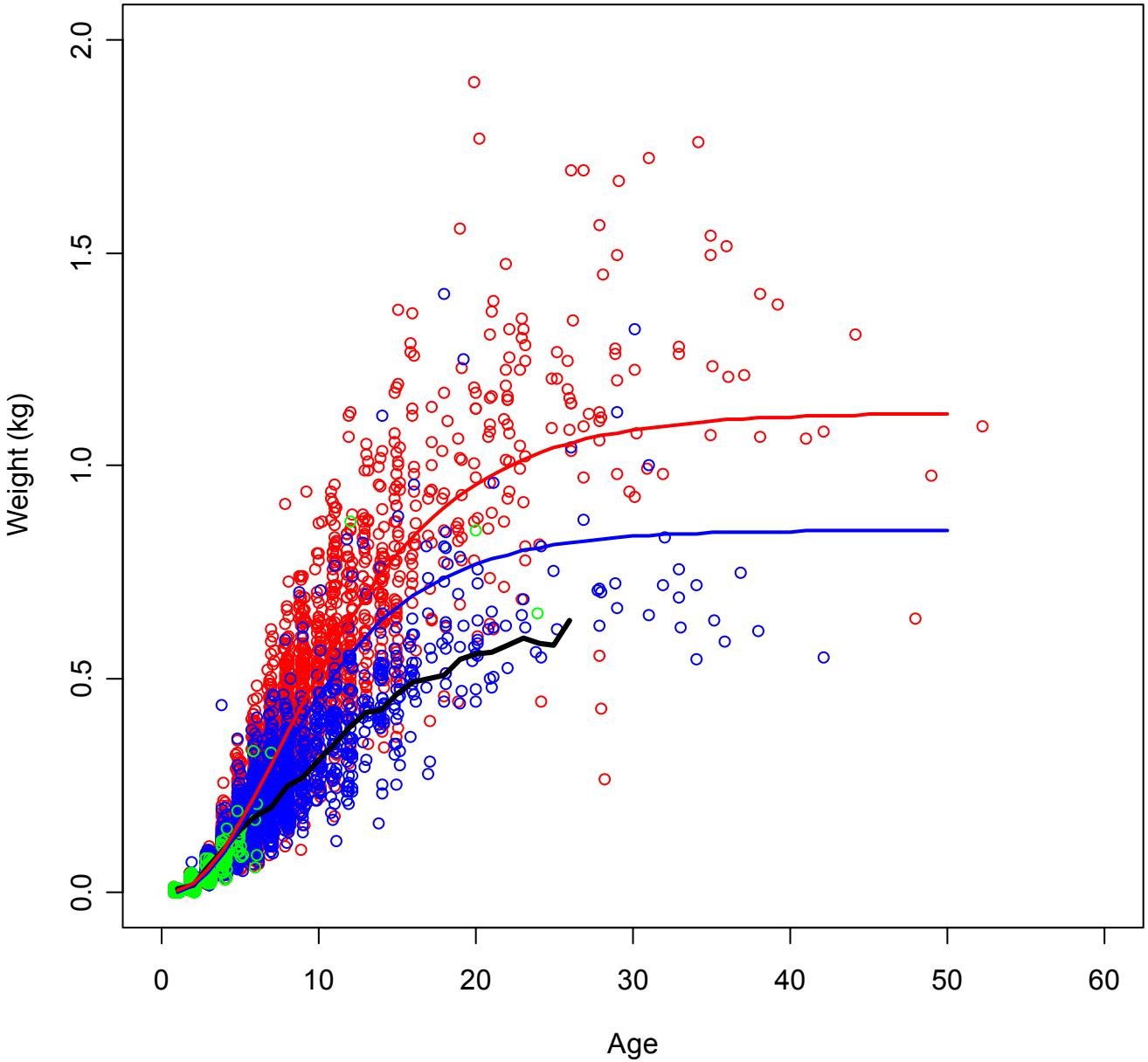
Weight at age

NO fish with age, length and weight in Spring survey…

Fit LVB and L-W models to fish with age, length and weight information in all surveys.

Big difference in estimated curves and that assumed in previous assessments

Decided to revise weight at age with curve fit to females



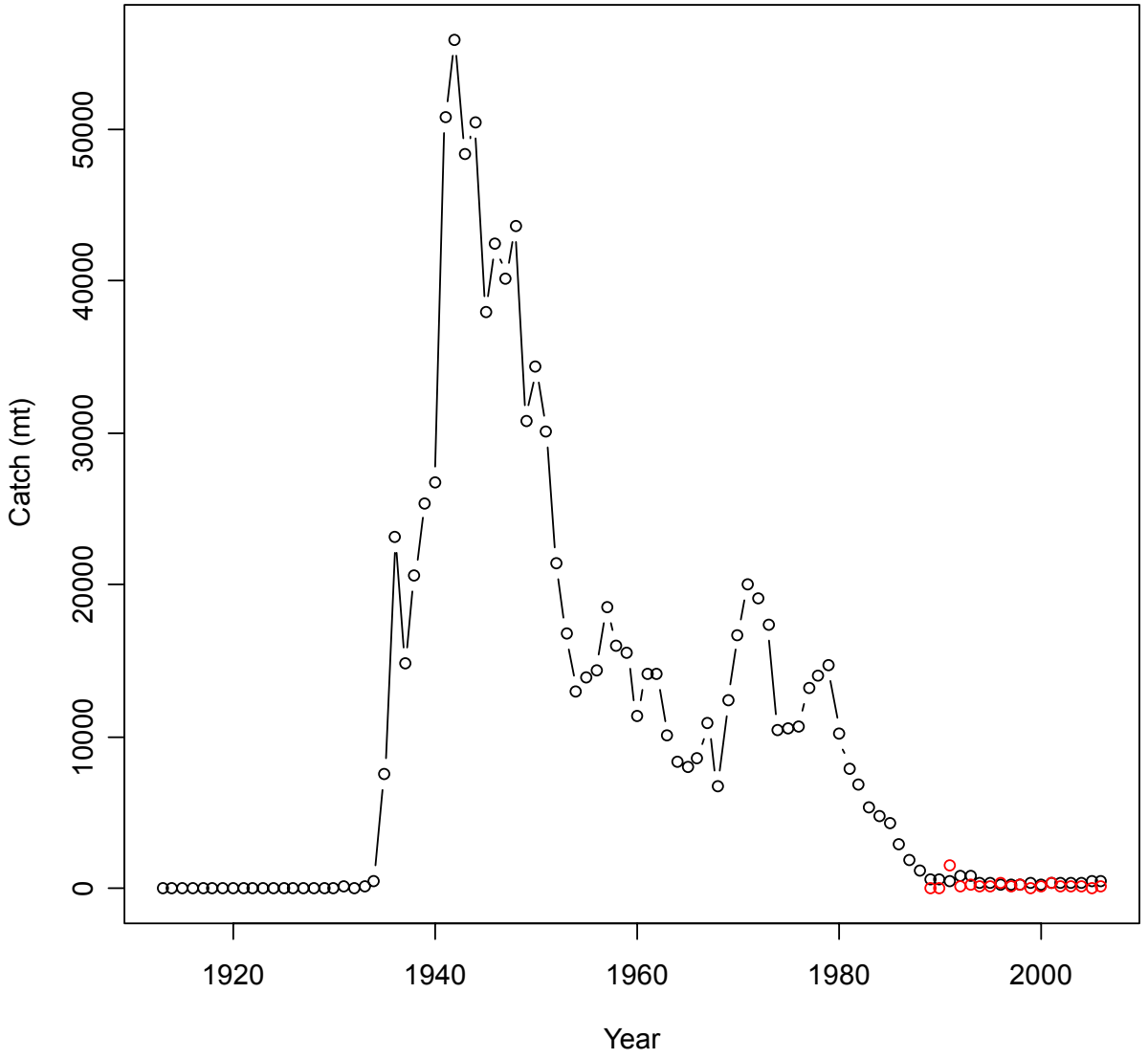
Discards

Apparently, not a whole lot going on…

Extremely small amounts relative to historic catches, but substantial compared to recent landings.

Hindcasting a rate is probably not appropriate given complete change in "fishery"

Added in discards to total catch and used variances to obtain CVs of landings in those years.



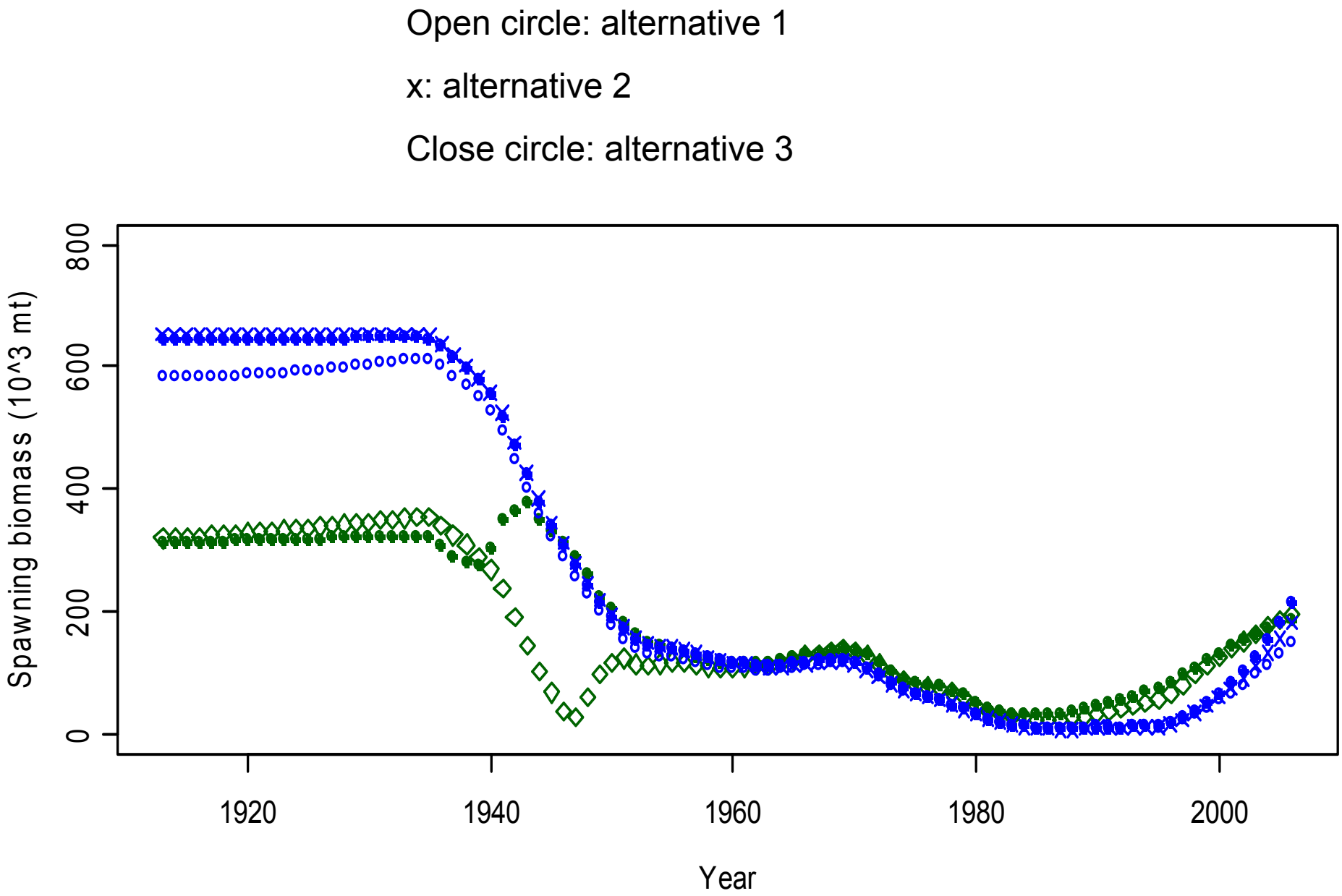
Redfish -- ASAP 2.0

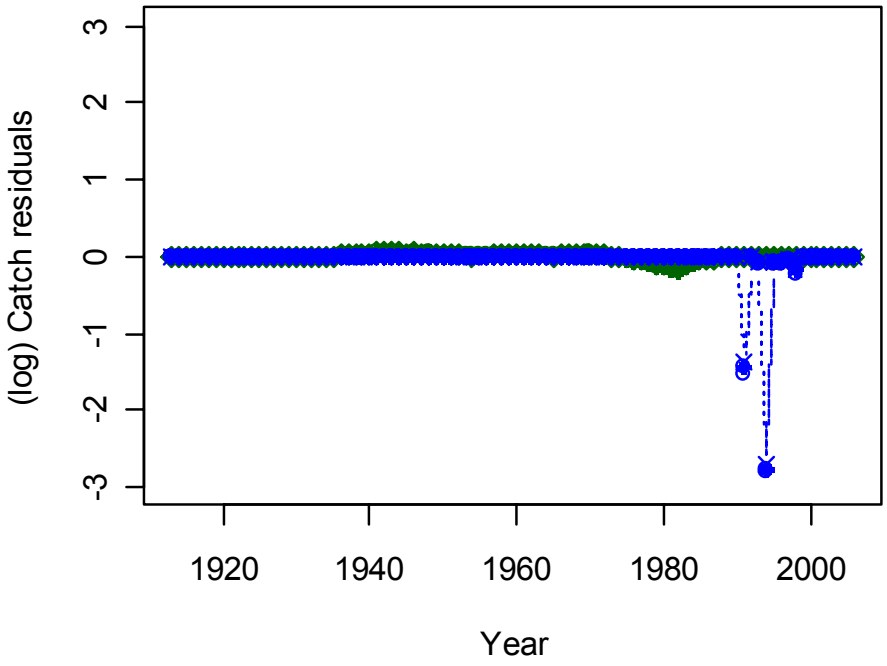
- Assumptions:
  - The CV of recruitment residuals was less prior to 1969 (alternatives 1, 2 and 3).
  - CV of N at age in first year 0.01
  - CV of landings 0.01 (prior to 1989)
  - CV of survey indices – design-based
  - CV of survey/fishing selectivity pars 0.5
  - Input fleet effective sample size 200 (same)
  - Input survey effective sample size 100 (same)
  - M = 0.05 (same)
  - Spawning time = 0.4 (same)
  - Maturity at age (same)
  - Weight at age (same)
  - Age-specific F for ages 1-9 (same)
  - Age-specific survey selectivity for ages 1-9
  - Time of surveys (4.5, 10.5 months) (not same)

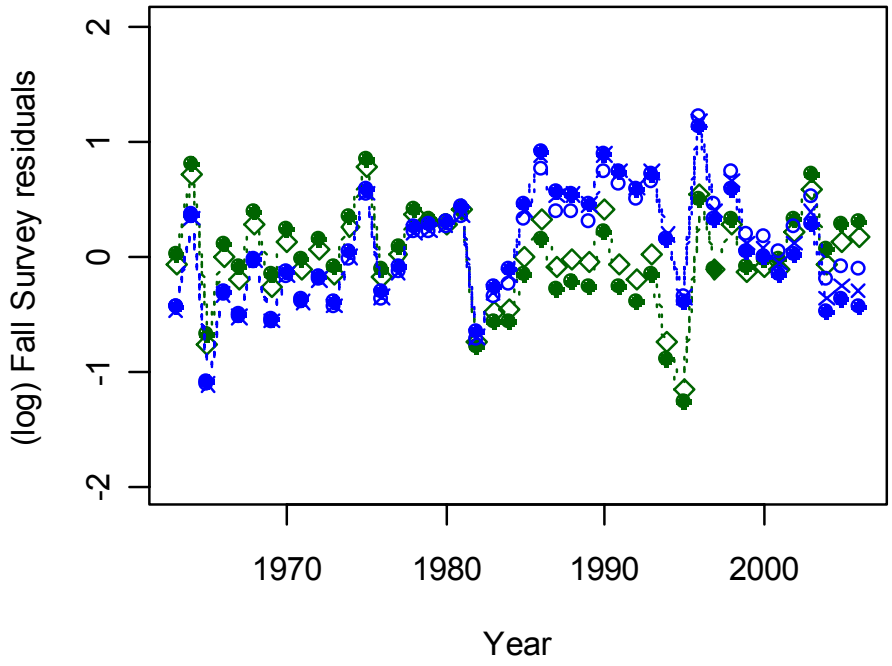
Redfish -- ASAP 2.0

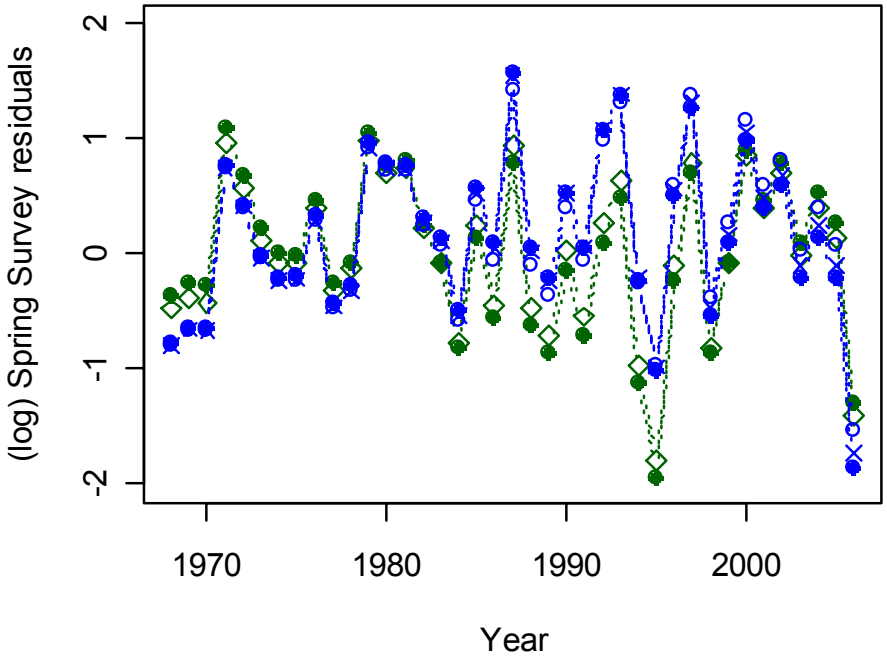
3 Alternatives

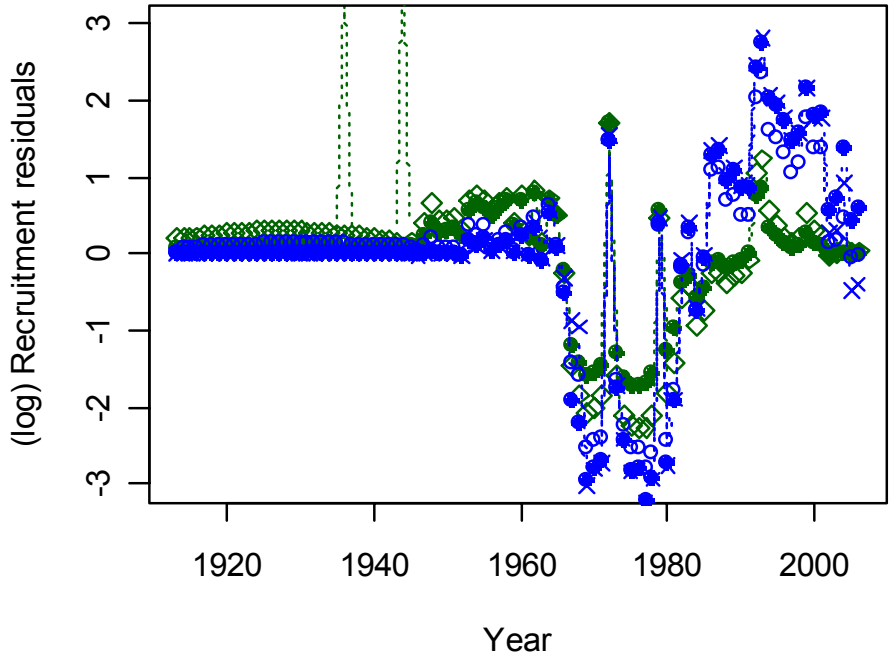
1. CV of recruitment residuals 0.2 prior to 1969, 0.4 after
2. CV of recruitment residuals 0.1 prior to 1969, 0.8 after
3. CV of recruitment residuals 0.1 prior to 1964, linear ramp to 0.8 in 1969

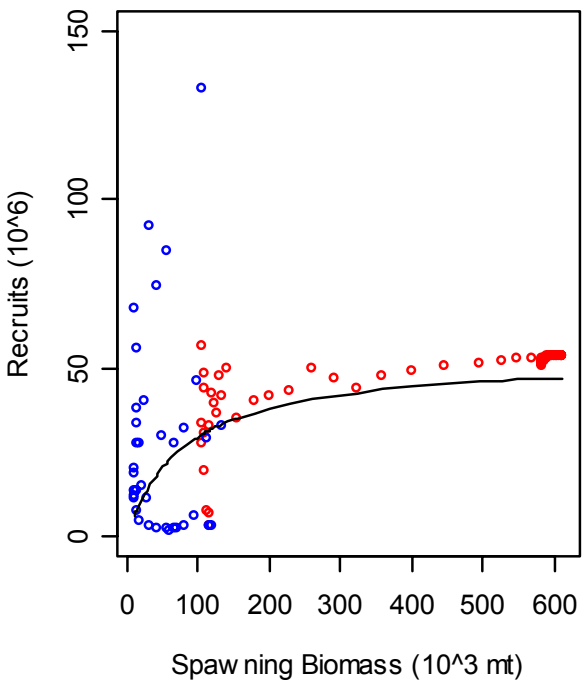

Open circle: alternative 1
x: alternative 2
Close circle: alternative 3
Spawning biomass (10^3 mt)
0
200
400
600
800
1920
1940
1960
1980
2000
Year

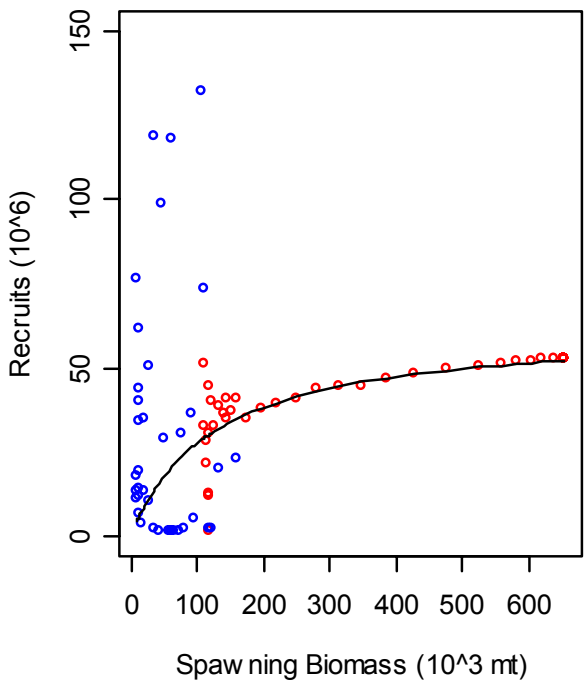

(log) Catch residuals
3
2
1
0
-1
-2
-3
1920
1940
1960
1980
2000
Year


(log) Fall Survey residuals
2
1
0
-1
-2
1970
1980
1990
2000
Year


(log) Spring Survey residuals
2
1
0
-1
-2
1970
1980
1990
2000
Year


(log) Recruitment residuals
3
2
1
0
-1
-2
-3
1920
1940
1960
1980
2000
Year


Recruits (10^6)
0
50
100
150
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Recruits (10^6)
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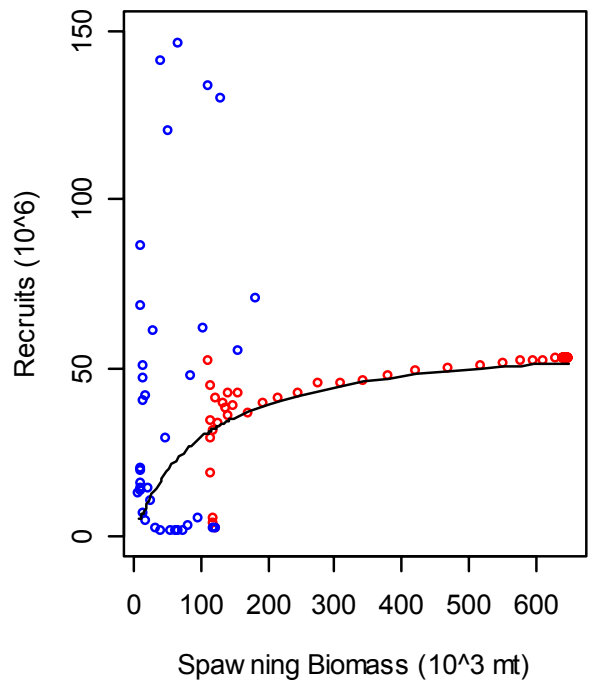
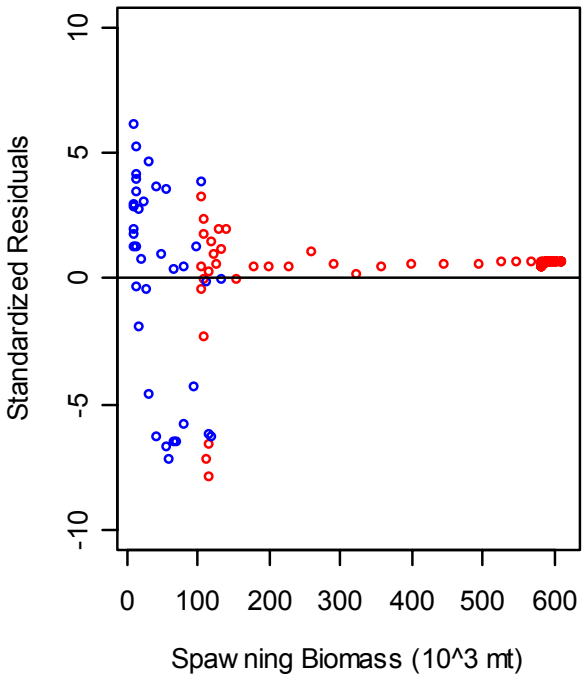
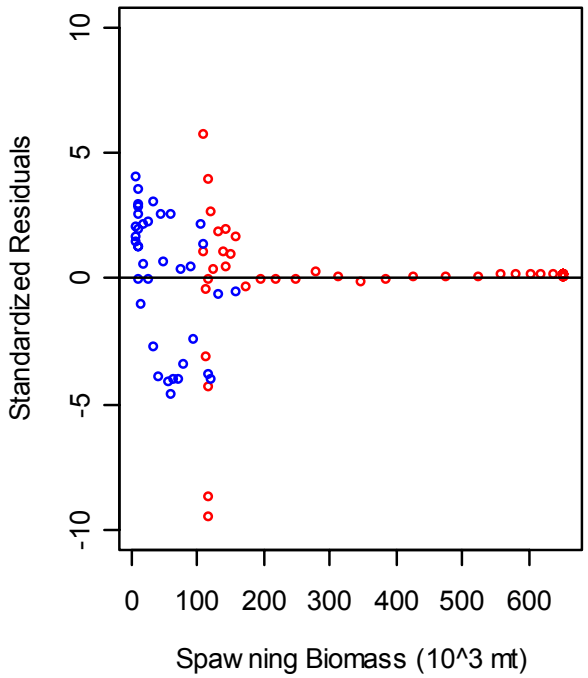
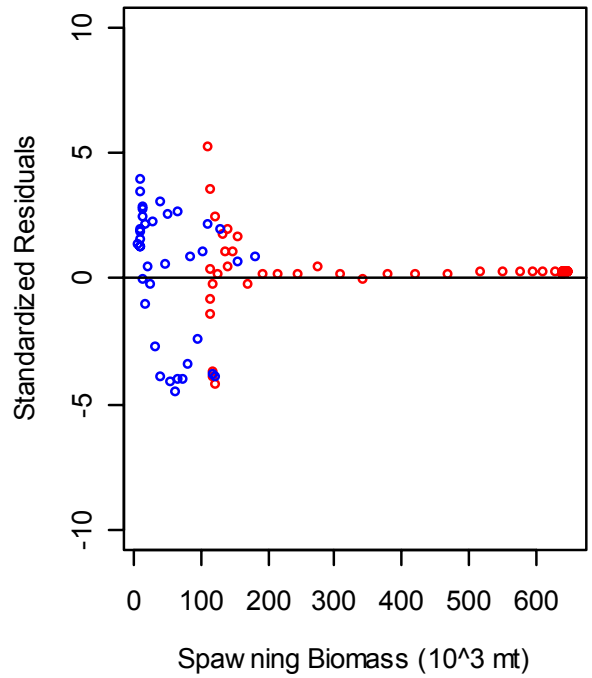
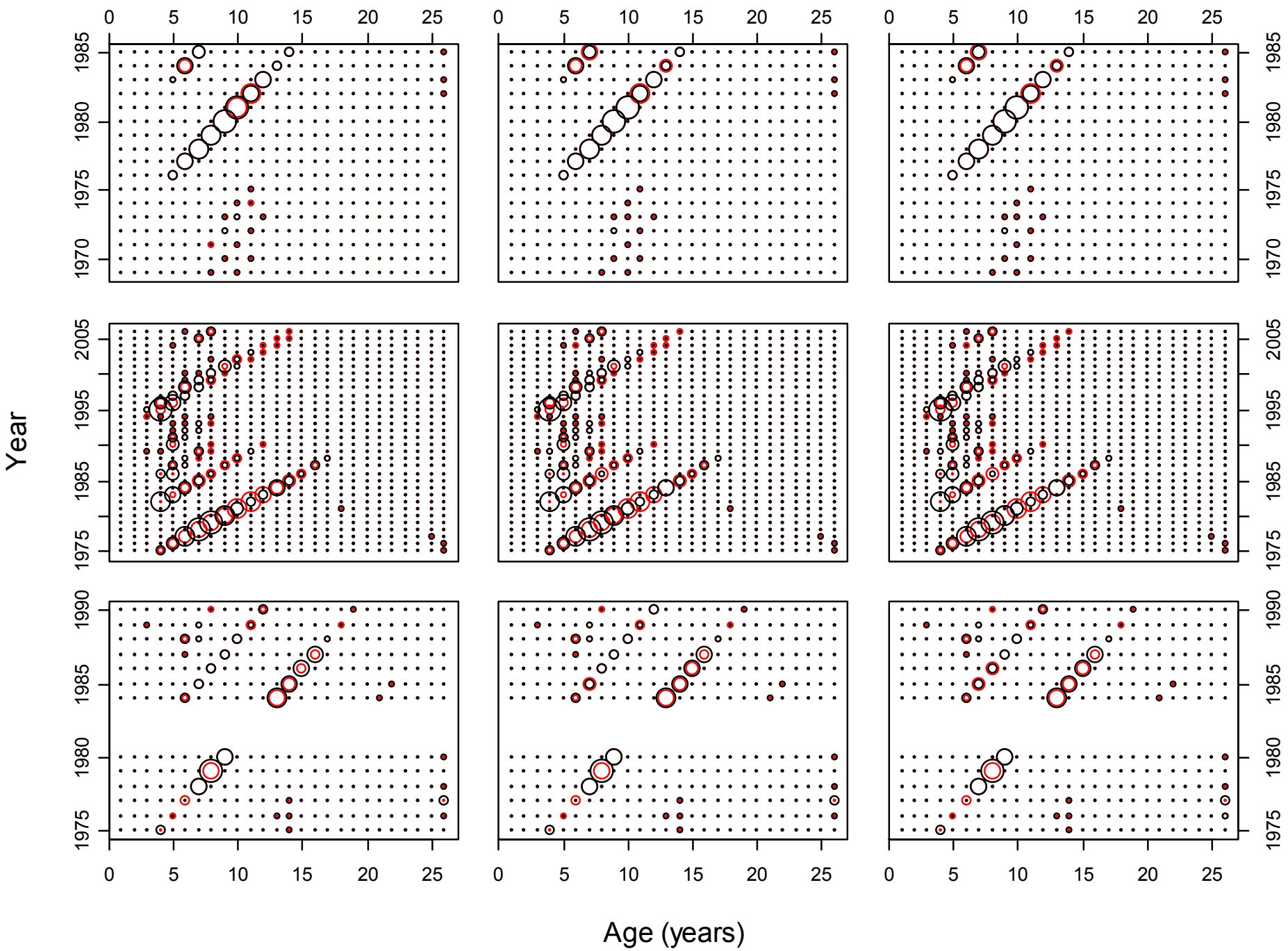
50
100
150
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Recruits (10^6)
0
50
100
150
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Standardized Residuals
-10
-5
0
5
10
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Standardized Residuals
-10
-5
0
5
10
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Standardized Residuals
-10
-5
0
5
10
0
100
200
300
400
500
600
Spaw ning Biomass (10^3 mt)


Year
Age (years)
0
5
10
15
20
25
1970
1975
1980
1985
1990
1995
2005

Biological Reference Points

	Current	AGEPRO -- ASAP Alternative 3		
	(50%MSP)	(internal, MSY)	(MSY, SR curve, 0.8CV)	(50%MSP, Rec. CDF)
SB(x)	236,700mt	207,580mt	353,040mt	261,280mt
F(x)	0.04	0.0391	0.0391	0.0387
Yield(x)	8,235mt	10,237mt	13,660mt	9,780mt